

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 39207/JMD	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB99/01871	International filing date (day/month/year) 14/06/1999	Priority date (day/month/year) 12/06/1998
International Patent Classification (IPC) or national classification and IPC G01N33/543		
Applicant CENES LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 11/01/2000	Date of completion of this report 20.06.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Hinchliffe, P Telephone No. +49 89 2399 8431 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/01871

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-39 as originally filed

Claims, No.:

1-46 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

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2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
- ☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-19,22-34,39-46
	No:	Claims	20,21,35-38
Inventive step (IS)	Yes:	Claims	1-19,22-34
	No:	Claims	39-46
Industrial applicability (IA)	Yes:	Claims	1-46
	No:	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

ITEM IV

1. According to Rule 13.1 PCT, the international application should relate to one invention only. However it is considered that in the present application two separate inventions are covered:

- i) Claims 1-38, ion channel membrane immobilised upon a porous substrate,
- ii) Claims 39-46, methods for measuring ion channel reactions to test

substances in which the test solutions comprise dihydrofolate

de

According to Rule 68.1, the examination authority chose not to invite the applicant to pay an additional fee and consequently the examination which follows covers both inventive concepts.

ITEM V

Inventive concept i

1. The subject matter of claims 1-19,22-34 fulfils the requirements of Article 33(2) PCT because the documents cited in the ISR do not disclose a membrane comprising an ion channel being bound to a porous substrate. It appears that the membranes comprising ion channels disclosed in all the documents cited are unsupported. The claims, which refer to such a membrane being adhered to a porous substrate is thus novel.
2. However the subject matters of claims 20 and 21 (and dependent claims 35-38) are not novel contrary to the requirements of Article 33(2) PCT. Both claims must be read as implying materials suitable for the stated uses. Any of the membranes and porous substrates disclosed in the documents cited in the ISR are considered to be suitable for the structure of claims 1-19 (see in particular D4, claim 1).
3. The subject matter of claims 1-19,22-34 also appears to fulfil the requirement of Article 33(3) PCT because the advantages offered w.r.t. to high throughput screening were not suggested in any way in the documents cited. Therefore a problem with performing high throughput screening is solved using ion channel containing membranes immobilised upon porous surfaces.

Inventive concept ii

1. There appears to be no mention of using DMS in the test solutions proposed in any of the documents cited in the ISR. Consequently it would appear that claims 39-46 fulfill the requirements of Art. 33(2) PCT (novelty).
2. The question of whether inclusion of DMS into either of the test solution fulfills the requirements of Art. 33(3) cannot be answered as no problem or surprising

reason to use the said reagent (a standard solvent used in the art) are provided.

ITEM VII

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D4 is not mentioned in the description, nor is this document identified therein.

ITEM VIII

1. The term "high resistance seal", found in claim 1, is unclear contrary to Art 6 PCT, because the claim fails to mention exactly what should be resisted (it is assumed that high electrical resistance is implied). Furthermore exactly what constitutes a high electrical resistance in the present case should be included (i.e. as a measurement in Ohms).
2. Claims 1 and 22 are unclear, contrary to Art. 6 PCT, because the term "screen" is confusing. It could imply either a process (i.e. a screening process) or a physical entity (i.e. a sieve). The term should be clarified.
3. There appears to be a spelling error in line 2 of claim 29 (Art. 6 PCT).

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 39207/JMD	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 99/01871	International filing date (day/month/year) 14/06/1999	(Earliest) Priority Date (day/month/year) 12/06/1998
Applicant CENES LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/01871

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G01N33/543 G01N27/327

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G01N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 23948 A (UNIV LELAND STANFORD JUNIOR) 4 June 1998 (1998-06-04) the whole document ---	1, 39
A	WO 96 36436 A (IRORI ;DAVID GARY S (US); NOVA MICHAEL P (US); SENYEI ANDREW E (US) 21 November 1996 (1996-11-21) abstract ---	1, 39
A	WO 97 20203 A (SCHALKHAMMER THOMAS ;PITTNER FRITZ (AT)) 5 June 1997 (1997-06-05) examples ---	1, 39
A	WO 97 25616 A (AUSTRALIAN MEMBRANE & BIOTECH ;UNIV SYDNEY (AU); BRAACH MAKSVYTIS) 17 July 1997 (1997-07-17) abstract --- -/-	1, 39

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

14 September 1999

Date of mailing of the international search report

21/09/1999

Name and mailing address of the ISA

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Authorized officer

Moreno, C

INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 89 01159 A (COMMW SCIENT IND RES ORG) 9 February 1989 (1989-02-09) abstract	1, 39
A	WO 96 13721 A (NEUROSEARCH AS ;OLESEN SOEREN PETER (DK); CHRISTOPHERSEN PALLE (DK) 9 May 1996 (1996-05-09) cited in the application the whole document	1, 39

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/01871

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9823948	A	04-06-1998	AU	5462498 A	22-06-1998
WO 9636436	A	21-11-1996	US	5741462 A	21-04-1998
			US	5925562 A	20-07-1999
			US	5751629 A	12-05-1998
			US	5874214 A	23-02-1999
			AU	707444 B	08-07-1999
			AU	5918596 A	29-11-1996
			AU	7257396 A	28-04-1997
			CA	2216645 A	21-11-1996
			CN	1181720 A	13-05-1998
			EP	0822861 A	11-02-1998
			EP	0853497 A	22-07-1998
			WO	9712680 A	10-04-1999
WO 9720203	A	05-06-1997	AT	403215 B	29-12-1997
			AT	194395 A	15-04-1997
			AT	48596 A	15-11-1997
WO 9725616	A	17-07-1997	AU	1360297 A	01-08-1997
WO 8901159	A	09-02-1989	AT	113724 T	15-11-1994
			AU	2127988 A	01-03-1989
			CA	1335879 A	13-06-1995
			DE	3852036 D	08-12-1994
			DE	3852036 T	09-03-1995
			EP	0382736 A	22-08-1990
			JP	2682859 B	26-11-1997
			JP	3503209 T	18-07-1991
			US	5693477 A	02-12-1997
			US	5741712 A	21-04-1998
			US	5766960 A	16-06-1998
			US	5436170 A	25-07-1995
WO 9613721	A	09-05-1996	AU	2788695 A	23-05-1996
			CA	2203886 A	09-05-1996
			EP	0788600 A	13-08-1997
			JP	10509794 T	22-09-1998

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 15 February 2000 (15.02.00)	
International application No. PCT/GB99/01871	Applicant's or agent's file reference 39207/JMD
International filing date (day/month/year) 14 June 1999 (14.06.99)	Priority date (day/month/year) 12 June 1998 (12.06.98)
Applicant OWEN, David, Geraint et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
11 January 2000 (11.01.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Olivia RANAIVOJAONA</p> <p>Telephone No.: (41-22) 338.83.38</p>
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